Appendix 1 Literature search strategies

Literature searching was conducted in June 2016 and updated in April/May 2017. The following databases were searched without language restriction: MEDLINE, MEDLINE Epub Ahead of Print & MEDLINE In-Process, PsychINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Science Citation Index (SCI), Cochrane Central Register of Controlled Trials (CENTRAL), and ClinicalTrials.gov. Ovid MEDLINE and EMBASE autoalerts have been in place since 2002 and results are screened regularly for long-term RCTs on obesity management in adults (≥ 1 year of follow-up). Copies of relevant reports are retained and the reviewers hand-searched these reports eligible studies. Therefore, search strategies for MEDLINE and EMBASE excluded the results of the autoalert search (using the Boolean operator NOT). A supplementary search of MEDLINE was undertaken to identify systematic reviews of severe or morbid obesity, and reference lists were scrutinised for additional studies.

RCTs for Review 1 (weight loss or weight maintenance programmes for adults with obesity) and Review 5 (weight loss or weight maintenance programmes for adults with obesity compared with bariatric surgery)

MEDLINE and EMBASE

Ovid multifile search: http://shibboleth.ovid.com/

Database: Embase <1988 to 2017 Week 17>, Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) <1946 to Present> 25th April 2017

Date of Search: 25th April 2017

1 Obesity, Morbid/dh, dt, su, th use ppez
2 Morbid Obesity/dt, su, th use emed
3 Obesity, Morbid/ use ppez
4 Morbid Obesity/ use emed
5 (obes$ adj3 (morbid$ or severe$)).tw.
6 (morbid obesity or severe obesity).kw.
7 (bmi adj ("27$" or "28$" or "29$"))tw.
8 (bmi adj ("30$" or "31$" or "32$" or "33$" or "34$" or "35$" or "36$" or "37$" or "38$" or "39$"))tw.
9 (bmi adj ("40$" or "41$" or "42$" or "43$" or "44$" or "45$" or "46$" or "47$" or "48$" or "49$"))tw.
10 (bmi adj ("50$" or "51$" or "52$" or "53$" or "54$" or "55$"))tw.
11 (body mass index adj ("35$" or "36$" or "37$" or "38$" or "39$"))tw.
12 (body mass index adj ("40$" or "41$" or "42$" or "43$" or "44$" or "45$" or "46$" or "47$" or "48$" or "49$"))tw.
13 (body mass index adj ("50$" or "51$" or "52$" or "53$" or "54$" or "55$"))tw.
14 or/3-12
15 exp bariatric surgery/
16 bariatric.tw,kw.
17 (gastric adj3 (bypass or bypass or band$ or balloon$)).tw.
18 (gastroplast$ or gastrect$).tw.
19 (jejunoileal adj3 (bypass or by pass)).tw.
20 lipectom$.tw
21 diet therapy/ use ppez or caloric restriction/ use ppez
or diet, carbohydrate-restricted/ use ppez
or diet, fat-restricted/ use ppez or diet, reducing/ use ppez
22 diet/ use emed or low calorie diet/ use emed or low carbohydrate diet/ use emed
23 (diet adj3 (restrict$ or reduc$ or modif$ or calorie$)).tw.
24 (calori$ adj3 (reduc$ or restrict$ or limit$)).tw.
25 exp anti-obesity agents/ use ppez
26 tetrahydrolipstatin/ use emed
27 sibutramine/ use emed
28 rimonabant/ use emed
29 (appetite adj3 (reduc$ or depress$)).tw.
30 (orlistat or xenical).tw,rm.
31 (sibutramin$ or arcalion or reductil or medaria or meridia).tw,rm.
32 (rimonabant or acomplia or zimulti).tw,rm.
33 exp exercise/
34 exp sports/
35 (exercise or aerobic or physical activ$).tw.
36 weight loss/ use ppez
37 weight reduction/ use emed
38 (weight adj3 (reduc$ or loss or lose)).tw.
39 Weight Reduction Programs/ use ppez
40 exp Body Weight Management/ use emed
41 Behavior Therapy/
42 Health Education/
43 Counseling/ use ppez
44 Nutritional counseling/ use emed
45 Life Style/ use ppez
46 Lifestyle modification/ use emed
47 (modif$ adj3 (behavior? or diet or eat? or eating)).tw.
48 ((diet or weight) adj3 (educat$ or counsel$)).tw.
49 or/15-46
50 1 or 2 or (14 and 49)
51 randomized controlled trial.pt.
52 controlled clinical trial.pt
53 randomi?ed.ab.
54 placebo.ab.
55 drug therapy.fs.
56 randomly.ab.
57 trial.ab.
58 groups.ab
59 nonhuman/ not human/
60 exp clinical trial/ use emed
61 randomization/ use emed
62 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 60 or 61
63 exp animals/ use ppez not humans/ use ppez
64 nonhuman/ use emed or animal/ use emed
65 64 not exp human/ use emed
66 62 not (63 or 65)
67 50 and 66
68 67 not (abstract or letter or note or editorial or comment).pt.
69 limit 68 to yr="1990 -Current"
70 obesity/
71 (obesity adj2 (morbid or diabet$)).tw.
72 obesity, morbid/ use ppez
73 morbid obesity/ use emed
74 obes$.tw.
75 weight loss/ use ppez
76 weight reduction/ use emed
77 (weight adj1 (los$ or reduc$ or maint$ or control)).tw.
78 (diet adj5 weight).tw.
79 overweight.tw.
80 or/70-79
81 80 and 66
82 69 not 81

**PsycINFO**
Ovid: http://shibboleth.ovid.com/
Database: PsycINFO <1987 to April Week 3 2017>

**Date of Search: 25th April 2017**

1 (obes$ adj3 (morbid$ or severe$)).tw.
2 (bmi adj ("27$" or "28$" or "29$"))or.tw.
3 (bmi adj ("30$" or "31$" or "32$" or "33$" or "34$" or "35$" or "36$" or "37$" or "38$" or "39$"))or.tw.
4 (bmi adj ("40$" or "41$" or "42$" or "43$" or "44$" or "45$" or "46$" or "47$" or "48$" or "49$"))or.tw.
5 (bmi adj ("50$" or "51$" or "52$" or "53$" or "54$" or "55$"))or.tw.
6 (body mass index adj ("27$" or "28$" or "29$"))or.tw.
7 (body mass index adj ("30$" or "31$" or "32$" or "33$" or "34$" or "35$" or "36$" or "37$" or "38$" or "39$"))or.tw.
8 (body mass index adj ("40$" or "41$" or "42$" or "43$" or "44$" or "45$" or "46$" or "47$" or "48$" or "49$"))or.tw.
9 (body mass index adj ("50$" or "51$" or "52$" or "53$" or "54$" or "55$"))or.tw.
10 or/1-9
11 clinical trials/
12 randomi?ed.tw,md.
13 randomly.tw,md.
14 trial?.tw,md
15 or/11-14
16 10 and 15

**CINAHL**
http://search.ebscohost.com
1990- 25th April 2017
Date of Search: 25th April 2017

S1 (MH "Obesity, Morbid") OR TX ( obes|* N3 (morbid or sever*))
S2 TX ( bmi N3 (27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39). ) OR
TX ( bmi N3 (40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49). ) OR TX ( bmi N3 (50 or
51 or 52 or 53 or 54 or 55). )
S3 TX ( body mass index N3 (35 or 36 or 37 or 38 or 39). ) OR TX ( body mass index N3 (40 or
41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49). ) OR TX ( body mass index N3 (50 or 51 or
52 or 53 or 54 or 55). )
S4 S1 OR S2 OR S3
S5 (MH "Bariatric Surgery+")
S6 TX bariatric OR TX gastroplasty
S7 TX bariatric OR TX gastroplast* AND TX gastrect*
S8 TX ( gastric N3 (by pass or by pass or band* or balloon*) ) OR TX ( jejunoileal N3 (bypass or
by pass ) OR TX lipectom*
S9 (MH "Diet Therapy") OR (MH "Diet, Reducing") OR (MH "Restricted Diet") OR (MH "Diet, Fat-Restricted") OR (MH "Diet, Low Carbohydrate")
S10 TX ( diet N3 (restrict* or reduc* or modif* or calorie*)) ) OR TX ( calori* N3 (reduc* or
restrict* or limit*). )
S11 (MH "Antiobesity Agents+")
S12 TX ( orlistat or xenical ) OR TX ( sibutramin$ or arcalion or reductil or medaria or meridia )
OR TX ( rimonabant or acomplia or zimulti )
S13 (MH “Exercise+”) OR TX exercise or aerobic or physical activ*).
S15 (MH “Physical Fitness”)
S16 (MH “Weight Loss”)
S17 TX weight N3 (reduc* or loss or lose)).
S18 (MH "Weight Reduction Programs”)
S19 (MH “Counseling”)
S20 (MH “Life Style”) OR (MH “Life Style Changes”)
S21 TX ( modif* N3 (behavior or behaviour or diet or eat* or eating ) OR TX ( (diet or weight)
N3 (educat* or counsel*)). )
S22 S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S21
S23 S4 AND S22 Limiters - Published Date: 19900101-20161231
S24 S4 AND S22 Limiters - Exclude MEDLINE records

Science Citation Index
www.webofknowledge.com
1988 - 25th April 2017

Date of Search: 25th April 2017
# 1 (TS=(morbid NEAR/3 obes$)) AND DOCUMENT TYPES: (Article)
# 2 (TS=(severe$ NEAR/3 obes$)) AND DOCUMENT TYPES: (Article)
# 3 (TS=(bmi NEAR/3 (27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39))) AND DOCUMENT TYPES: (Article)
# 4 ((TS=(bmi NEAR/3 (40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49)))) AND DOCUMENT TYPES: (Article)
# 5 ((TS=(bmi NEAR/3 (50 or 51 or 52 or 53 or 54 or 55))))) AND DOCUMENT TYPES: (Article)
# 6 #5 OR #4 OR #3 OR #2 OR #1
# 7 (TS=(randomized or randomised or randomly)) AND DOCUMENT TYPES: (Article)
# 8 (TS=clinical trial*) AND DOCUMENT TYPES: (Article)
# 9 #8 OR #7
# 10 #9 AND #6
# 11 (TS=(bariatric or gastroplast* or gastrect*)) AND DOCUMENT TYPES: (Article)
# 12 (TS=((gastric or jejunoileal) NEAR/3 bypass)) AND DOCUMENT TYPES: (Article)
# 13 ((TS=((gastric or jejunoileal) NEAR/3 "by pass"))) AND DOCUMENT TYPES: (Article)
# 14 (TS=(gastric NEAR/3 (band* or balloon*))) AND DOCUMENT TYPES: (Article)
#2 MeSH descriptor: [Obesity, Morbid] explode all trees
#3 obes* near/3 (morbid* or severe*):ti,ab,kw (Word variations have been searched)
#4 bmi near/1 (27* or 28* or 29* or 30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*):ti,ab,kw or bmi near/1 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*):ti,ab,kw or bmi near/1 (50* or 51* or 52* or 53* or 54* or 55*):ti,ab,kw (Word variations have been searched)
#5 body mass index near/1 (27* or 28* or 29* or 30* or 31* or 32* or 33* or 34* or 35* or 36* or 37* or 38* or 39*):ti,ab,kw or body mass index near/1 (40* or 41* or 42* or 43* or 44* or 45* or 46* or 47* or 48* or 49*):ti,ab,kw or body mass index near/1 (50* or 51* or 52* or 53* or 54* or 55*):ti,ab,kw (Word variations have been searched)
#6 #2 or #3 or #4 or #5
#7 MeSH descriptor: [Bariatric Surgery] explode all trees
#8 bariatric:ti,ab,kw (Word variations have been searched)
#9 gastric near/3 (bypass or by pass or band* or balloon*):ti,ab,kw or gastroplast* or gastrect*:ti,ab,kw or lipectom*:ti,ab,kw or jejunoileal near/3 (bypass or by pass):ti,ab,kw (Word variations have been searched)
#10 MeSH descriptor: [Diet Therapy] explode all trees
#11 MeSH descriptor: [Diet, Reducing] explode all trees
#12 MeSH descriptor: [Diet, Fat-Restricted] explode all trees
#13 MeSH descriptor: [Diet, Carbohydrate-Restricted] explode all trees
#14 MeSH descriptor: [Caloric Restriction] explode all trees
#15 diet near/3 (restrict* or reduc* or modif* or calorie*):ti,ab,kw or calori* near/3 (reduc* or restrict* or limit*):ti,ab,kw (Word variations have been searched)
#16 MeSH descriptor: [Anti-Obesity Agents] explode all trees
#17 appetite near/3 (reduc* or depress*):ti,ab,kw or orlistat or xenical:ti,ab,kw or sibutramin or arcalion or reductil or medaria or meridia:ti,ab,kw or rimonabant or acomplia or zimulti:ti,ab,kw (Word variations have been searched)
#18 MeSH descriptor: [Exercise] explode all trees
#19 MeSH descriptor: [Sports] explode all trees
#20 exercise or aerobic* or physical activ*:ti,ab,kw (Word variations have been searched)
#21 MeSH descriptor: [Weight Loss] explode all trees
#22 MeSH descriptor: [Weight Reduction Programs] explode all trees
#23 weight near/3 (reduc* or loss or lose) .:ti,ab,kw (Word variations have been searched)
#24 weight near/3 (reduc* or loss or lose) .:ti,ab,kw (Word variations have been searched)
#25 MeSH descriptor: [Behavior Therapy] explode all trees
#26 MeSH descriptor: [Health Education] explode all trees
#27 MeSH descriptor: [Counseling] explode all trees
#28 MeSH descriptor: [Life Style] explode all trees
#29 diet near/3 (educat* or counsel*):ti,ab,kw or modif* near/3 (behaviour or behavior or diet or eat or eating):ti,ab,kw or weight near/3 (educat* or counsel*):ti,ab,kw (Word variations have been searched)
#30 #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29
#31 #6 and #30
#32 #1 or #31 Publication Year from 1990 to 2016, in Trials
#33 conference abstract (Word variations have been searched)
#34 #32 not #33
Appendix 2   PRISMA flow diagram

Excluded N=2011

Selected for full-text assessment N=141

Excluded studies N=122
- BMI <35 or unclear N=39
- Not RCT N=19
- Not relevant intervention/strategy N=6
- Assessment <12 months N=15
- No relevant outcome N=27
- Secondary publication N=13
- Not obtained N=3

Included studies N=19

Identified from other sources (previous auto-alert searches, previous review studies & qualitative searches) N=112

Total included studies N=131
Appendix 3 List of included studies


O'Neil PM, Miller-Kovach K, Tuerk PW, Becker LE, Wadden TA, Fujioka K, et al. Randomized Controlled Trial of a Nationally Available Weight Control Program Tailored for Adults with Type 2 Diabetes. *Obesity* 2016;24:2269-77.


Pekkarinen T, Kaukua J, Mustajoki P. Long-term weight maintenance after a 17-week weight loss intervention with or without a one-year maintenance program: A randomized controlled trial. *Journal of Obesity* 2015;Article 651460


